MEDICAL IMAGING

CSO Customer Support Operations

HOME

Technical Documentation

Order-No.: DD+DIS180.00E

1 Piece T6TWQ MA1

May 2000

ADC System

Processing Station

Modification Instructions

Please file this document in section 10
of your Technical Documentation ADC System

Upgrade from DIPS 1.0.03 to VIPS.1.1.05
and
Upgrade from VIPS.1.0.05 to VIPS.1.1.05
and
Upgrade from VIPS.1.0.09 to VIPS.1.1.05

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printed in Germany

AGFA

1 General Information

1.1 Software Prerequisites

ADC Compact Digitizer: ≥ COP_1112, COP_1215,
PRID (Preview & Identification SW): ≥ PRID1.1.07

1.2 Main Changes in VIPS.1.1.05*

- Operating System and application Sw are on two separate CDs
- Editable layouts and text fields
- Smart Print (licensed option) (for further information see appendix B)
- Print to non AGFA DICOM printers (for further information see appendix B)
- New license management
- Annotation bug fixed
- Print / sent / archived flag are set/updated correctly
- Negative number of images in wastebin not possible any more
- Zoomed print does not crash any more
- New collimation Sw introduced. Reduces collimation failure rate ("jagged white line" problem)

* For further details see points 3, 4, 5, 6, and 7 of this document.

1.3 Hardware Prerequisites

The experience has shown that 128 MB RAM is the absolute minimum for the Processing Station. However, for a good performance (UI speed, UI stability) 192 MB RAM memory is recommended. The Processing Stations coming from AGFA are equipped with 256MB RAM. This guarantees that the Processing Stations are working well with SW-Options with high RAM utilization (e.g. ADCC Full leg / spine SW) as well.
The system is only tested with 27 GB hard disk space for images. AGFA does not guarantee a smooth working if more hard disk space for images is used.
As the swap space has been increased at least a 2 GB HD is needed to store the Operating System and the Application plus approximately 180 images.

1.4 Released Options

So far the following options have been released:

OPTION	Released	New in VIPS1105/PRID1110
Interactive processing SW	Yes	No
ADCC Autorouting SW	Yes	No
ADCC Uro Tomo SW	Yes	No
ADCC Pediatric SW	No	-
ADCC Dental SW	No	-
ADCC Full leg / spine SW	Yes	No
ADCC Smart Print SW*	Yes	Yes
ADCC Annotation SW	Yes	No
ADCC Black Border SW	Yes	No
ADCC Dose Monitoring SW	Yes	No
ADCC Auto QC SW	Yes	No
ADCC Dicom Store Connection SW	Yes	No
ADCC Softcopy Toolkit SW	Yes	No
PS5000 upgrade to ADCC	Yes	No
ADCC PRID on UNIX SW	No	No

* The former options “ADCC Overview Printing SW” and “ADCC Slide Printing SW” are replaced by one Software package ➔ “ADCC Smart Print SW”

1.5 Release Environment

These versions on the hardcopy devices and the IMPAX Stations (and subsequent releases respectively) guarantee that all functions on the Processing Station are supported properly. Other combinations have not been tested and may result in restrictions in functionality.

LR5200	≥ LTP01901
LR5200 Controller	≥ AOS32946 /C ≥ CAD32946 /C ≥ ECU32947 /C
DICOM	≥ DCM2.3.4/C
IMPAX	≥ R3.5_v.2.4.0/C

1.6 Performance - Image Input Rate

A Processing Station can handle an input of 140 images scanned with standard resolution. This means that one Processing Station is able to handle two ADC Compact Digitizers at full load under the following conditions:

- The images are standard resolution.
- There are not more than 27GB memory space for images hooked to the Processing Station.
- Only the “Online Hardcopy” output is used.

It is also possible to connect maximum three ADC Compact Digitizers to one Processing Station. However, this reduces the possible workload on each digitizer accordingly. It is not recommended to connect more than three Digitizers to one Processing Station.

1.7 New License Policy on Processing Station application Software VIPS.1.1.05

With VIPS1.1.05 a new license policy is established similar to PRID1.1.07. The policy now is that the license can be switched on by the hospital responsible (FSE, system administrator, user), i.e. the license management has been moved from the "Maintenance Menu" to the "System Monitoring". Please refer to the user manual for more information.
A licensed option can be switched on in demonstration** mode or with a full license. A full license requires a sixteen digit license number. This is a dedicated number for each of the above mentioned software options.
The license number is created in production and is communicated to the client by means of a license card which comes with the ordered software option.
Licenses already used with VIPS1.1.09 or older will stay active after the upgrade.

** The demonstration license is valid 30 days. After this time period the licensed option is deactivated again and cannot be switched on in "DEMO" mode any more.

1.8 Printing on VIPS.1.1.05

VIPS.1.1.05 supports the following printers. Only these printers are tested and verified.
For details see appendix B.

Please use only CCM1104 for the configuration of the printers listed below.

Printer
3M - Imation 8100
3M - Imation 8300
3M - Imation 8500
3M - Imation 8600
3M - Imation 8700
3M - Imation HQ969
Agfa DI2000
Agfa DI3000 (11 x 14 film)
Agfa DI3000 (14 x 14 film)
Agfa DI3000 (14 x 17 film)
Agfa DI4500
Agfa DI4500 (low resolution)
Agfa DI4700
Agfa LR3300
Agfa LR5200
Agfa LR5200 High Res.
Kodak KELP100 XLP
KODAK KELP1120 with MIM DPS controller
KODAK KELP1120 with 'dicom print spooler model 100', 'Printer interface unit' or the 'DICOM print server' controllers
KODAK KELP2180 with MIM DPS controller
KODAK KELP2180 with with 'dicom print spooler model 100', 'Printer interface unit' or the 'DICOM print server' controllers
Kodak MLP-190
KODAK XLT7720
Sterling DI400
Sterling LP400
Sterling SIJ100
Sterling SIJ400

1.9 Order No.: EB+44060721

Scope of delivery Software Kit VIPS.1.1.05

- 2 CD ROM: MIMOSA VIPS1.1.05 + MIMOSA OS AGOS.A.0.6.01
- 1 Floppy disk Upgrade support floppy
- 1 Floppy disk Language disk LNG1.0.05 for the (V)DIPS Software ≥ DIPS1.0.03
- 1 Documentation Upgrade procedure
- 1 Floppy disk Empty disk, necessary for the upgrade procedure
- 2 DAT-tapes Necessary for the backup of the system disk
- 5 Floppy disks CCM tool version 1104
- 1 Floppy disk ADB configuration tool with documentation

1.10 Required Time for the Upgrade

The upgrade itself takes max. 90 minutes (depends strongly on the speed of the CD ROM drive). The upgrade can be done with or without saving and restoring the images from the System Disk. It takes about 50 minutes / 100 images to save them to and restore them from DAT-tape (calculated with an average image size of 5.9MB).

Example for a 2.1GB system disk:
90 min for mere upgrade + 100min for 200 images = 190min = 3hours 10min

Example for a 4.2GB system disk:
90 min for mere upgrade + 260 min for 520 images = 330min = 5hours 30min

Reduce the upgrade time as far as possible. Remove all the images (also OFLS) the customer does not need any more on the Processing Station.

1.11 Useful Accessories

Cleaning tape
DAT-tape Necessary if “Offline” images have to be saved.

2 Upgrade Procedure

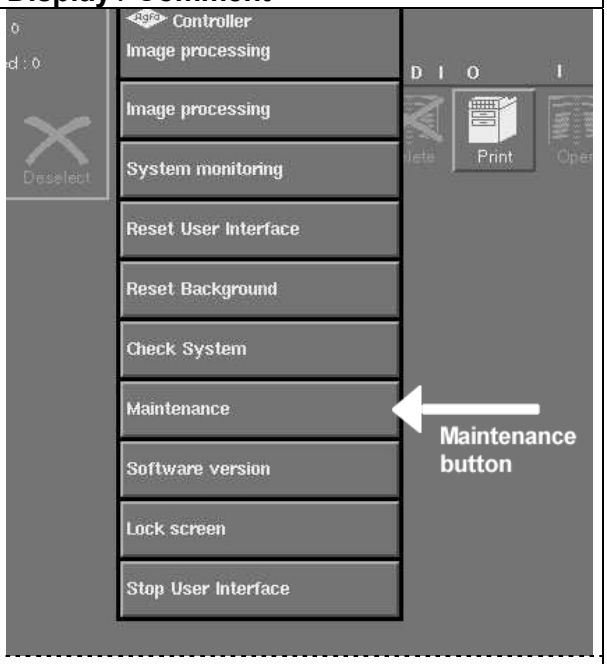
2.1 Preparing Actions

Steps 1 – 4 are only necessary if the images on the system disk are needed again after the upgrade.

No.	Procedure Steps	Display / Comment
1.	Insert cleaning tape into DAT-tape drive and wait until it is ejected again.	
2.	As the backup of the images can take very long (approx. 25min/100images) remove no more needed images from the Processing Station	
3.	Check if the DAT-tape drive is accessible.: • Switch on DAT-tape drive • go to **`Maintenance`** and hit `<Return>` • Type: **`2`** to select **`Tools`** and hit `<Return>` **`1`** to select **`Terminal`** and hit `<Return>`	`A new terminal window appears.`
4.	. Enter **`mt -f /dev/rmt/0lb rewind`** in the terminal window.	If you get no response and just return to the prompt everything is ok. If you get the response "`No tape loaded or drive offline`" everything is ok. If you get the response "`No such device or address`" the DAT-tape drive is connected on the wrong SCSI connector on the rear of the Processing Station. Please shutdown the Processing Station and connect your DAT-tape drive

If the DAT-tape drive is not connected to the correct SCSI port, the backup and restore of the images will fail.

5.	Save "Offline images" to DAT-tape. If they are not needed anymore skip this step. Time to save is approx. 25 minutes / 100 OFL images.	

No.	Procedure Steps	Display / Comment
6.	go to **<Maintenance>** and hit <Return>	
7.	Select: **2** to select **Repair** and hit <Return> **6** to select **ImportExport** and hit <Return> **4** to select **DirList** and hit <Return>	
8.	Insert an empty DAT-tape into the DAT-tape drive. Make sure that the write protection is off on the DAT-tape	
9.	Select: **5** to select **Save** and hit <Return> **q** to exit this menu and hit <Return>	
10.	Check and write down the current hostname, current ip-address and netmask of the Processing Station. This data will be needed during the software upgrade.	
11.	go to **<Maintenance>** and hit <Return>	
12.	Select: **2** to select **Repair** and hit <Return> **4** to select **SystemInfo** and hit <Return>	

No.	Procedure Steps	Display / Comment

13.	Move to the section "`Workstation Networking Environment`" in the system information. The following information should appear:	`....`
		`----- Workstation Networking Environment -----`
		`Workstation : vips220 192.9.200.220`
		`Broadcast : - 192.9.200.255`
		`Netmask : - 255.255.255.127`
		`....`

14.	Enter the Hostname of the Processing Station (= Workstation) (in the above example "**`vips220`**").	
15.	Enter the IP address of the Workstation (in the above example "**`192.9.200.220`**").	
16.	Write down the Netmask of the Processing Station (in the above example "**`255.255.255.127`**"). ☞ This field maybe empty if no subnetting is done.	
17.	`Select:` **`q`** to exit this menu and hit `<Return>`	

☞ Steps 18 - 25 are only required with version MIMOSA DIPS1.0.03. They are not needed if version MIMOSA VIPS1.0.05 or higher is installed on your Proc. Station.

18.	Insert the "UPGRADE SUPPORT floppy"	
19.	go to **`<Maintenance>`** and hit `<Return>`	
20.	`Select:` **`2`** to select **`Tools`** and hit `<Return>` **`7`** to select **`FloppyDir`** to mount the floppy and hit `<Return>` **`1`** to select **`Terminal`** and hit `<Return>`	`A new terminal window appears`
21.	Enter **`/floppy/floppy0/install.csh`**	`OK to continue`
22.	Enter **`yes`**	
23.	Enter **`eject floppy`** in the terminal window	
24.	Enter **`exit`** in the terminal window	
25.	`Select:` **`q`** to exit this menu and hit `<Return>`	

2.2 Upgrade Procedure

No.	Procedure Steps	Display / Comment
1.	go to **<Maintenance>** and hit <Return>	
2.	Select: 3 to select **Install** and hit <Return> 3 to select **Software** and hit <Return> 3 to select **Upgrade** and hit <Return>	If the question „Remove all OFL-files" appears answer it with **yes**

Step 3 can be skipped if the current images are not needed anymore after the upgrade.

3.	Insert an empty DAT-tape into the DAT-tape drive and wait until the green LED on the DAT-tape drive stops flashing.	
4.	Take a System backup on tape now [yes, no, skip, ?, q]:	Enter "yes" if the current images are still needed after the upgrade. Saving images to DAT-tape can take very long (approx. 25min/100images). Enter "skip" if the current images are not needed anymore after the upgrade. Ok to continue [yes, no, ?, q]:
5.	Enter **yes**	SaveArea backup on floppy or tape [floppy, tape, ?, q]:
6.	Enter **floppy**	Put floppy into drive and hit <return>:

Don't enter "tape" → Due to a software bug this crashes the upgrade procedure.

7.	hit **<return>**	Ok to reboot from cdrom [yes, no, ?, q]:
8.	Enter **yes**	
9.	Insert the CD ROM with AGOS.A.6.01 into CD ROM drive	Mount bootable CDROM and hit <return>:
10.	hit **<return>**	
11.	Booting from CD ROM takes about 5 minutes	
12.	Select: 1 to select **Install** and hit <Return> 1 to select **Upgrade** and hit <Return> 3 to select **Upgrade** and hit <Return>	Use the floppy as JumpStart floppy [yes, no, ?, q]:

No.	Procedure Steps	Display / Comment
13.	If the floppy is still in the drive, enter **no**	`Install O.S. software from ./SYSTEM/ AGOS.A.6.01 [yes,no,?,q]:`
14.	Enter **yes**	The Solaris installation program starts now. The `Solaris Installation Program` window appears
15.	Hit **<Continue>**	The `Identify This System"` window appears
16.	Hit **<Continue>**	The `Hostname` window appears
17.	Enter the old hostname and hit **<Continue>**	The `Network Connectivity` window appears
18.	Hit **<yes>** and hit **<Continue>**	The following window appears only with ULTRA SPARC 1 hardware and if a fast ethernet board is installed. Here you can choose between hme0 **(**= 100mbit/10mbit auto sensing) or le0 (= 10 mbit onboard). We recommend to select hme0. The `Primary Network Interface` window appears
19.	Hit **hme0** and hit **<Continue>**	The `IP Address"` window appears
20.	Enter the old ip_address and hit **<Continue>**	The `Confirm information` window appears
21.	Check if the entries are correct and confirm by hitting **<Continue>.**	The `Subnet` window appears
22.	Hit **<no>** . If subnetting is used hit **<yes>** and then enter the old subnetmask. hit **<Continue>.**	The `Time Zone` window appears
23.	Hit **<Geographic region>** and hit **<set>**.	The `Geographic region"` window appears
24.	Select **<Local Region>** and **<Time zone>** and hit **<Continue>.**	The `Date and Time` window appears
25.	Modify **<Date>** and **<Time>** if not correct. and hit **<Continue>.**	The `Confirm information"` window appears
26.	Check if the entries are correct and confirm by hitting **<Continue>.**	Successful system configuration is confirmed by the message `"System identification is completed."`

Now the Solaris operating system files are copied to the Processing Station. After about 15 minutes it will be rebooted automatically. After a few minutes the following message is displayed.

```
Please log on as root and enter:
/mimosa.install
```

No.	Procedure Steps	Display / Comment
27.		`Hit <return> to continue`
28.	hit **<return>**	`vips220 console login:`
29.	Enter **root**	`Password:`
30.	enter **adcroot**	
31.	Enter **newfs -i 16384 -m 2% /dev/rdsk/c0t0d0s7**	On the query `Construct a new file system /dev/rdsk/c0t0d0S7 (y/n)?`
32.	Enter **y**	
33.	Enter **/mimosa.install**	`OK to run with option upgrade[yes, no, ?, q]:`
34.	Enter **yes**	installation takes about 15 – 20 min.

If you want to restore the old images, insert the backup DAT-tape into the drive now (if not already in) and wait until the green light stops flashing.

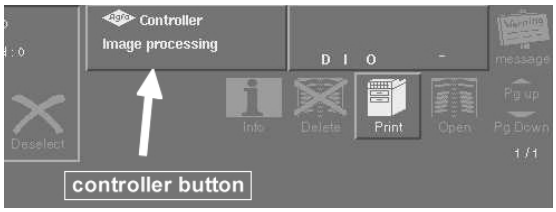
35.		`Restore directory /images from tape [yes, no, ?, q]:`
36.	If you want to restore the old images enter **yes** If you do not need the old images anymore enter **no**	
37.	Enter **yes**	`Install SW from ./MIMOSA/VIPS1105[yes, no, ?, q]:`
38.	Insert CD ROM with VIPS 1.1.05	

Steps 39 and 40 appear only if under step 36 the old images from the backup DAT-tape have not been restored.

39.	Insert the floppy with SaveArea backup.	`Choose a SaveArea [?, ??, q]:`
40.	Enter **2** to select **floppy**	

Don't enter "`tape`" → Due to a software bug this crashes the upgrade procedure.
Now the ORACLE database files, MIMOSA application files are copied to the Processing Station and the MIMOSA software is initialized with the old configuration data. This takes about 20 minutes

41.		`Ok to reboot:`
42.	Enter **yes**	
43.	The Processing Station reboots once again and starts up with the MIMOSA User Interface.	

No.	Procedure Steps	Display / Comment
44.	If the old images do not appear run a **<Check System>** via the controller button in the MIMOSA User Interface. It can take a while until the new images will show up.	
45.	Eject the DAT-tape and the floppy	

2.3 Installation of the Language Files

With this upgrade the language files are not saved. Therefore they have to be reinstalled.

No.	Procedure Steps	Display / Comment
1.	go to **<Maintenance>** and hit <Return>	
2.	Insert language disk	
3.	Select: **2** to select **Install** and hit <Return> **7** to select **Languages** and hit <Return> **1** to select **CopyLanguages** and hit <Return> **4** to select **FloppyEject** and hit <Return>	All Language files will be loaded.
4.	Remove the floppy	
5.	Exit **<Maintenance>**	
6.	Reset the MIMOSA User Interface to get it in the language you had before the upgrade.	

2.4 Finish Upgrade

To finish the upgrade, a customer specific backup has to be made on an empty floppy.

No.	Procedure Steps	Display / Comment
1.	go to **<Maintenance>** and hit <Return>	
2.	Insert an empty floppy disk Select: **2** to select **Install** and hit <Return> **9** to select **Backup** and hit <Return> **1** to select **SiteSpecific** and hit <Return> **4** to select **FloppyEject** and hit <Return>	Save Area backup on floppy or tape [floppy,tape,?,q]:
3.	enter **f** for floppy	
4.	After the backup is finished hit **q** to quit.	
5.	Hit **q** again	
6.	Select: **4** to select **Tools** and hit <Return> **8** to select **EjectFloppy** and hit <Return>	
7.	Remove floppy from floppy drive	
8.	Hit **q** to quit Tools menu	
9.	Exit **<Maintenance>**	
10.	Label floppy with backup with the following data and store it in a save place:	

Site specific backup of <*hostname*>	
For Version:	VIPS1105
Name:	<*Your Name*>
Date:	<*Current date*>

3 Solved Problems from VIPS.1.0.09 to VIPS.1.1.05

- Print / sent / archived flag set correctly.
- Screensaver settings are only defined by means of the cpf-file now. Solaris settings do not interfere any more.
- Problems of "jagged white line" and "black reduced images" are solved by a new collimation algorithm. This also increases the reliability of the collimation algorithm.
- The number of images in the system module always remained "0", no matter if the system was fresh installed or has been used for several days. The algorithm for counting the available images is correct now.
- Sometimes the Print Preview on the Processing Station and the actual deviated from each other. This is solved now.
- Printing / sending of an image with annotations failed. The image was printed without the annotations. This is solved now.
- In some languages the date was followed by a ">". This is solved due to a new Solaris operating system.
- There was no study date filled in into corresponding DICOM field for full leg / full spine examinations. The study date is now filled in correctly.
- Sometimes it was not possible to install UPS software. Now, the UPS software is a part of the MIMOSA release again.
- If the collimation shape "circle" is moved out of the left image border it works OK as well now.
- Printing 30x15 cm cassettes through on-line channel gave minimized images on film. This is solved now.
- After selecting three images and changing the distance between them in "full leg / full spine" software the stitching and annulment buttons were no longer visible. After selecting white images (unexposed for test) the UI crashed. This is solved now.
- When attempting to print a zoomed image and the zoomed area was at the borders of the image the printing crashed. The hard copy was not printed. This did not occur if the zoomed area was in the center or nearby. The problem occurred only with 15 x 30 cm cassettes.
- On systems on which a lot of manually deleted images existed it could happen that the images in the wastebin got a negative number. Autodelete then was not able to delete the images. This is solved now.
- If images were sent through the on-line channel, and could not be delivered successfully, it could block the transmission from the Digitizer to the Processing Station as well. A time-out (default: 5min) has been introduced which can be configured by means of the DICOM_SEND_TIMEOUT_DEFAULT in the cpf-file.
- Statistics in the Infocounter were not correct. Wrong calculations in the Infocounter are corrected now.

The following item is more likely based on misunderstanding than on a software problem:

- Umlaut letters are sorted after "z" in the patient list. Sorting happens according to the installed language. So, as soon as you switch from normal mode to service mode, sorting is done according to the English Language.

4 Solved Problems from VIPS.1.0.05 to VIPS.1.1.05

If you upgrade from VIPS.1.0.05 to VIPS.1.1.05 the following problems have been solved in addition to the ones mentioned in point 3.

- Autodelete problems are solved. The Processing Station gets no longer slow if many images are stored. Image partitions are no longer getting full. Hard disk space up to 27GB is supported now.
- Images with annotations can be zoomed and printed now.
- The date format is now set according to the language setting.
- Lists for selection are now sorted correctly, regardless of the case of the letters. Umlaute are fully integrated into the alphabetical order.
- The screen lock couldn't be disabled on some systems. It can be activated/deactivated now via the CCM configuration tool. To disable this function via CCM tool set the parameter "screensaver" to "off" and "time" to "0".
- The MIMOSA User Interface stability is increased significantly by increasing the maximum shared memory size and increasing the swap space by 50%.
- The system couldn't be booted after the message "`/usr-file system full`" had appeared. This happened when the machine switched to "Suspend Mode" and stored its current status in a file. Because this file was too big the system didn't boot again. To avoid this problem the "Suspense Mode" has been deactivated (e.g. CPR-package has been removed) now.
- A new way of drawing annotations has been introduced. To avoid blurred or dotted annotations on noisy background a black border is drawn around white annotations.
- A new modem initialization file for "MOTOROLA FAST 3265" modem has been introduced. The file is adapted to the latest state of the modem default settings.
- The "defaultrouter" can be changed via the MIMOSA configuration file "adc.cpf" by means of the CCM tool.
- After starting a new module in the Controller the user can start working right away now without waiting for the "Controller" button to return.
- Printing a test image now works. To print a test image go to "System Monitoring – Output – Test".
- Displaying an Infocounter does not result in an error anymore when reading a counter file that contains empty lines.
- DICOM Pixel Spacing contains "non square" values for rectangular cassette sizes. Proper rounding to three decimals is added to make sure that Siemens Magic View will support measurements on this image.
- The MIMOSA User Interface does not crash anymore when the space bar is pushed.
- It's no longer possible to enter the figure "0" when calibrating the measurement unit.
- If a grid is superimposed on the image you are forced to enter a grid distance as well.
- Image directories are no longer exported.
- A new icon for the different save to floppy functions is used. It shows a floppy with a pencil writing on it.
- It is possible now to view additional information in the "Service" mode of the MIMOSA User Interface. It is hidden, however, to all other users.
- In the Maintenance Menu the option "Tools→Message" has been corrected. It is now possible to send a message to the remote Processing Station via modem.

5 What's new in VIPS.1.1.05

- Printing of slides and overview print are now possible by means of the "Smart Print" option. This replaces the former ADC-overview Sw and the ADC slide printing Sw.
- The text annotation font size always corresponds to the last selected one.

6 What's new from VIPS1.0.05 to VIPS.1.1.05

- ADC Compact Auto QC Software is released now (= the Leeds phantom evaluation SW).
- This requires a license.
- ADC Compact Full leg/spine Software is released now. This requires a license. This option runs properly only with 192 MB or more.
- A new MIMOSA configuration file (adc.cpf file) is installed now in production. This configuration file provides a basic configuration for a complete ADC system and allows you start working without any configuration work.
- The Infocounters of the Processing Station have been expanded.
- Eject CD ROM and floppy from “Setup” in “System Module” possible now.
- ADB (AGFA DICOM Bridge) software is included now.

7 Known bugs not solved yet (VIPS.1.1.05)

- The collimation frame is white instead of black.
- The film size buttons in the Smart Print UI sometimes display incomplete names.
- Slides of large film formats (e.g. 14 x 17 x inch) cannot be printed.
- Some images are not displayed correctly when they are pre-selected for Smart Print if their default film size is not available on the active printer

Restrictions:

- for restrictions of *Smart Print / Printing to non MG3 layout printers* please see appendix B.
- adb configuration files from VIPS 1.0.09 are not compatible with VIPS.1.1.05. The configuration has to be done again by means of the adb-configuration tool.

8 Printer Set-Up for Smart Print

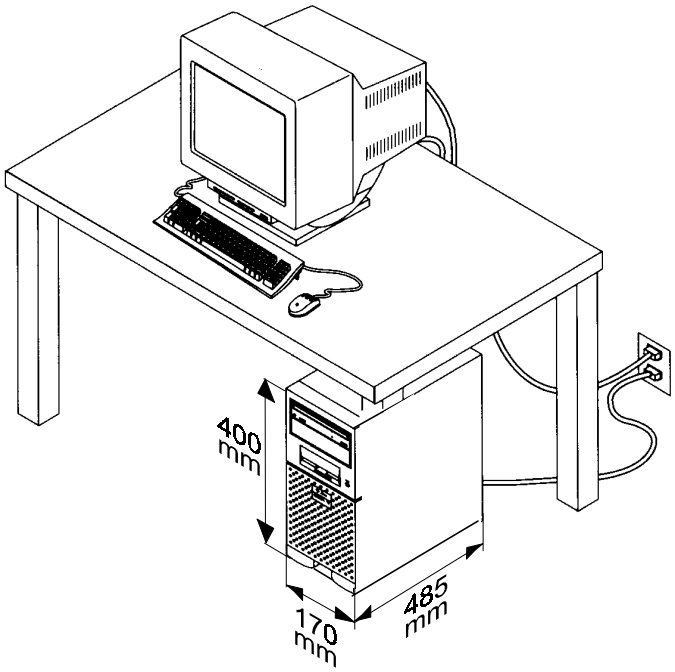
- To make full usage of Smart Print, you have to adapt your AGFA printer. The file pms.ini has to be created/modified. You have to add the following entry to this file.

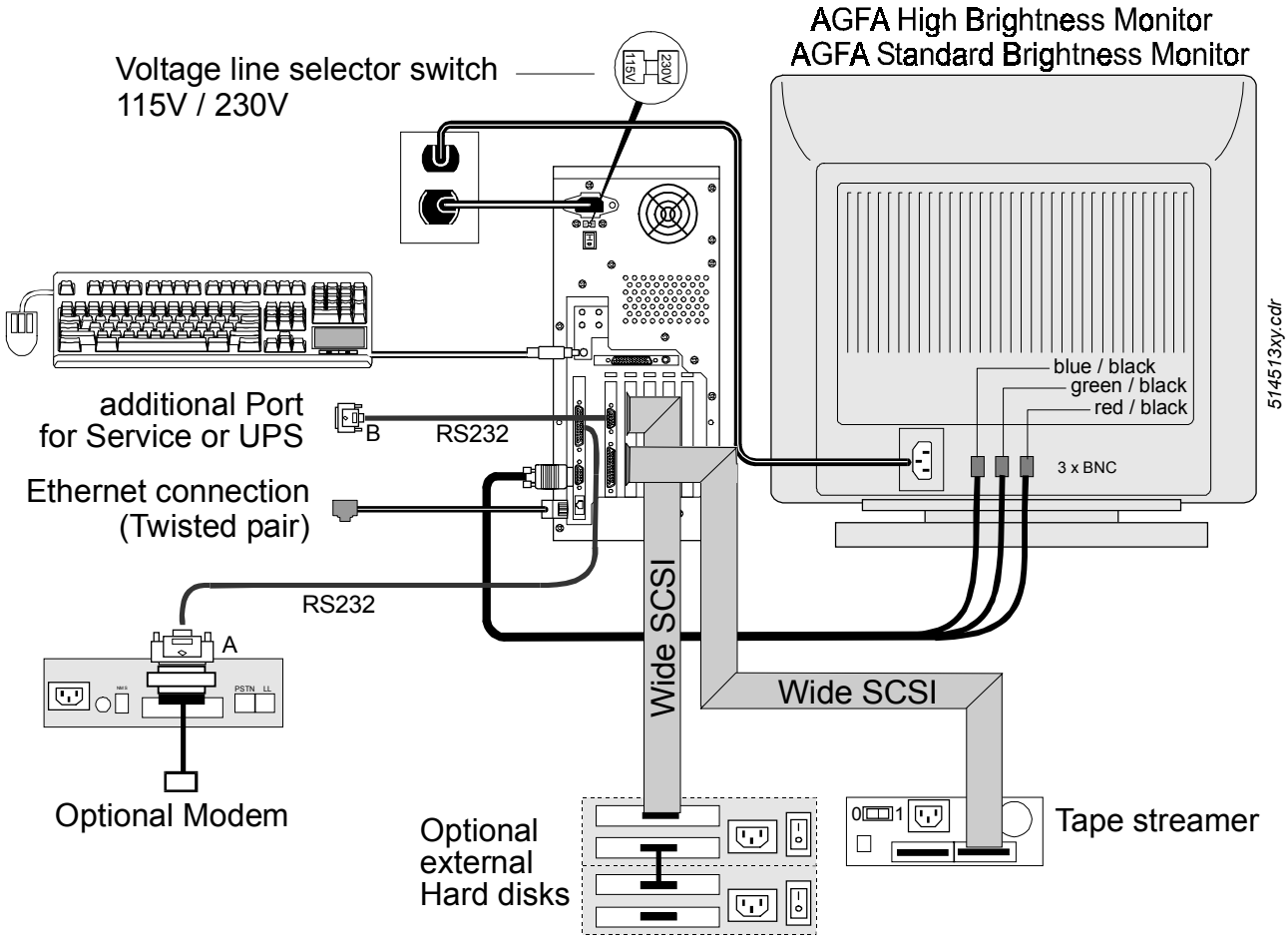
```
[ADC_PS1]
IDF=C:/PMS2000.IDF
```

In the above example the AE-Title of the Processing Station is [ADC_PS1].
For each Processing Station which uses Smart Print you have to create these two lines in your pms.ini file.
Otherwise true size printing will not give true size on film.

Appendix A: Processing Station connection diagram

Please do not use the field service bulletin DD+DIS183.98E as it is wrong. Replace the corresponding page in that field service bulletin with this one.





Appendix B: Smart Print Service Information

Scope
This document describes the working and configuration of the smartprint option and the option to print on 'non-mg3 layout printers'. It refers to the software version VIPS.1.1.05. Later software versions might have new features or more data.

'Non mg3 layout' printers
Up till recently, all Agfa printers were able to handle the so called 'mg3 layouts'. This means that a layout number was sent to the printer. This number identified a unique combination of film size, orientation, image box and text box sizes and positions.
New Agfa printers and printers from other manufacturers are not able to handle these 'mg3 layout numbers'. We refer in this document to these printers as being 'Non mg3 layout' printers.

General
Support for non-Agfa printers and improved layout control is obtained by doing all image processing, film composition, image scaling or drawing of texts on the VIPS Processing Station. The result is sent as one bitmap that is drawn on the specified film size in a standard DICOM 1/1 layout.
The advantages of this way of working are that the printer only needs to meet the lowest possible requirements, printing a single image on a 1/1 layout. This gives the user almost total layout control.
The disadvantage of this system is that bandwidth usage, memory usage and CPU usage are considerably higher than with the use of mg3 layouts. The configuration is also a little more complicated.

Smart Print
This new mechanism of creating a print job is used to have extended layout control on the Processing Station for both printers that are able to handle MG3 layouts and those that are not able to handle MG3 layouts. This software function, named 'Smartprint', is however optional and needs to be acquired separately.

Online Printing
Online printing to 'non mg3 layout' printers uses the same mechanisms. The Processing Station gets an mg3 layout number from the id-station via the digitizer. As the printer cannot handle these numbers, the Processing Station converts this number to the equivalent layout information. Then, this layout information is modified to fit on the available print medium and to fit in the available image box. This information is obtained from the printer configuration file. If the specified film size is not available on this printer then the closest match is used.
The result is a single bitmap that is sent to the printer, along with the required Dicom information to identify the 1/1 DICOM layout on the required film size.
Currently, no true size printing is foreseen for online printing to 'non mg3 layout' printers. This will be handled from software version VIPS.1.2.00 on. At this moment you can get true size printing by using the interactive smartprint module.

Failing print jobs
Print jobs can fail. In the current software version, the print jobs using the new printing mechanism that fail are not automatically resubmitted. The user has to restart these jobs manually. This issue will be handled from the VIPS.1.1.06 software on.

Online printing using hold

In this version of the software you are not able to use the hold function in combination with online printing to 'non MG3 printers'. This problem will be solved in the VIPS.1.1.06 version of the software onwards.

ID Station limitations

Currently the ID Station is not able to display other film formats than 8 X 10 Inch, 11X14 Inch and 14 X 17 Inch. You can reach all other film formats by modifying the cpf-file and replacing the desired film format with one of the three available formats that matches best. The Processing Station will automatically reconvert this film size to the best match available on the printer.

Supported printers

The following is the default set of printers and their main characteristics that are available and tested by the integration engineering team.

Printer	MG3 layout support	CCM code	Filmsizes
3M - Imation 8100	N	3M_8100	14 X 17 IN
3M - Imation 8300	N	3M_8300	8 X 10 IN
3M - Imation 8500	N	3M_8500	11 X 14 IN
3M - Imation 8600	N	3M_8600	8 X 10 IN
3M - Imation 8700	N	3M_8700	14 X 17 IN
3M - Imation HQ969	N	3M_HQ969	14 X 17 IN 11 X 14 IN 8 X 10 IN
Agfa DI2000	Y	DI2000	8 X 10 IN
Agfa DI3000 (11 x 14 film)	Y	DI3000_1114	11 X 14 IN
Agfa DI3000 (14 x 14 film)	Y	DI3000_1414	14 X 14 IN
Agfa DI3000 (14 x 17 film)	Y	DI3000_1417	14 X 17 IN
Agfa DI4500	N	DI4500	10 X 12 IN 8 X 10 IN
Agfa DI4500 (low resolution)	N	DI4500lr	10 X 12 IN 8 X 10 IN
Agfa DI4700	N	DI4700	10 X 12 IN 8 X 10 IN
Agfa LR3300	Y	LR3300	14 X 17 IN 11 X 14 IN 8 X 10 IN
Agfa LR5200	Y	LR5200	14 X 17 IN 11 X 14 IN 8 X 10 IN
Agfa LR5200 High Res.	Y	LR5200HR	14 X 17 IN 11 X 14 IN 8 X 10 IN
Kodak KELP100 XLP	N	KOD_KELP100XLP	14 X 17 IN 14 X 14 IN 11 X 14 IN
KODAK KELP1120 with MIM DPS controller	N	KOD_KELP1120_DPS	14 X 17 IN 14 X 14 IN 11 X 14 IN 8 X 10 IN
KODAK KELP1120 with 'dicom print spooler model 100', 'Printer interface unit' or the 'DICOM print server' controllers	N	KOD_KELP1120_PIU	14 X 17 IN 14 X 14 IN 11 X 14 IN 8 X 10 IN
KODAK KELP2180 with MIM DPS controller	N	KOD_KELP2180_DPS	14 X 17 IN 14 X 14 IN 11 X 14 IN 8 X 10 IN
KODAK KELP2180 with with 'dicom print spooler model	N	KOD_KELP2180_PIU	14 X 17 IN 14 X 14 IN

100', 'Printer interface unit' or the 'DICOM print server' controllers			11 X 14 IN 8 X 10 IN
Kodak MLP-190	N	KOD_MLP190	14 X 17 IN
KODAK XLT7720	N	KOD_XLT7720	11 X 11 IN A size
Sterling DI400	N	STE_DI400	14 X 17 IN
Sterling LP400	N	STE_LP400	14 X 17 IN 11 X 14 IN 8 X 10 IN
Sterling SIJ100	N	STE_SIJ100	14 X 17 IN 8 X 10 IN
Sterling SIJ400	N	STE_SIJ400	14 X 17 IN 8 X 10 IN

Available printers

The following is the set of printers and their main characteristics that are available but not tested by the integration engineering team. This means that they can be used, but the configuration for this printer might require one or more modifications. Use these printers only after consulting with the integration engineering group. The tested configuration files for the Fuji printers will become available in the VIPS.1.1.06 software.

Printer	MG3 layout support	CCM code	Filmsizes
Codonics NP1600	N	COD_EP1600	8.5 X 11 IN 8.5 X 9 IN 8.5 X 11.5 IN 9 X 11.5 IN
Codonics NP1660	N	COD_EP1660	8.5 X 11 IN 8.5 X 9 IN 8.5 X 11.5 IN 9 X 11.5 IN
FUJI FL-IMD	N	FUJ_FL-IMD	14 X 17 IN 14 X 14 IN 11 X 14 IN
FUJI IM2636	N	FUJ_IM2636	11 X 14 IN
FUJI IM3543	N	FUJ_IM3543	14 X 17 IN
FUJI FM-DPL	N	FUJ_FM-DPL	14 X 17 IN 14 X 14 IN 11 X 14 IN
FUJI CR-DP	N	FUJ_CR-DP	14 X 17 IN 14 X 14 IN
Konica 10x12	N	KON_10X12	10 X 12 IN
Konica 11x14	N	KON_11X14	11 X 14 IN
Konica 14x17	N	KON_14X17	14 X 17 IN
Konica 8x10	N	KON_8X10	8 X 10 IN
Konica LI10/LI21	N	KON_LI20	14 X 17 IN 14 X 14 IN 11 X 14 IN 10 X 12 IN 8 X 10 IN
Konica DRYPRO 722	N	KON_722	14 X 17 IN 14 X 14 IN 11 X 14 IN 10 X 12 IN 8 X 10 IN

Printer memory

As the images that are created for printing use a considerable amount of memory, a memory upgrade for your printer might be necessary. Additionally, some printers might not have enough memory to rotate an image. At this moment, there is no option to specify that the rotation of the image should be done by the Processing Station.

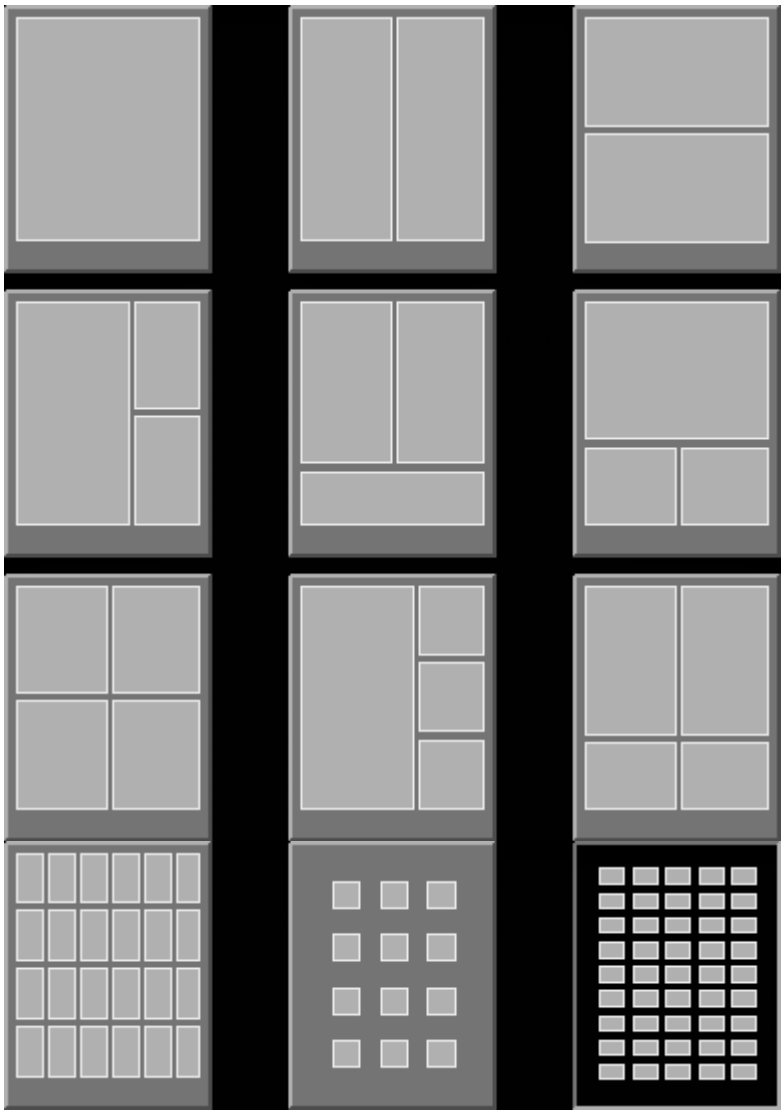
Photographic representation
The photographic representation for the printers cannot be specified and is fixed to 'Monochrome 1'. If a printer only supports 'Monochrome 2', it cannot be used with this software version. Only the Sterling LP400 is known to have this problem at the moment. Normally, a new software version for this printer is available.

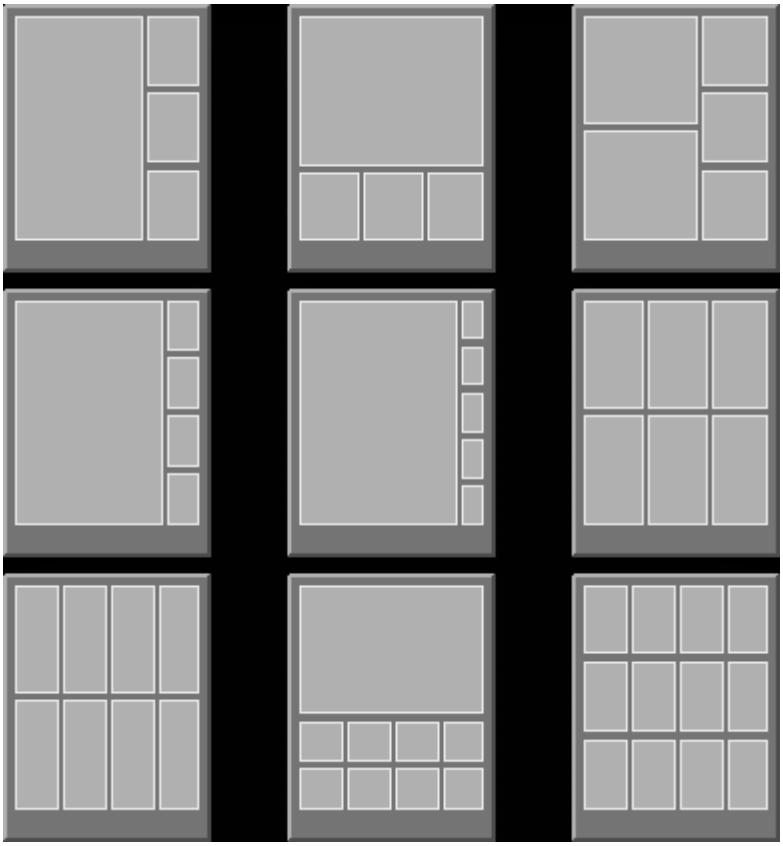
Printer configuration
Normally, configuration can be done via the CCM tool (≥ 1.1.04). For this, two new fields were added to the hardcopy table. The first one indicates whether or not the printer supports 'mg3 layouts'. The second field indicates which model the printer is.

The actual printer definition files are placed in the directory
'`/home/mimosa/irc/local/Hardcopy/printers`'.
`$END`

Default layouts

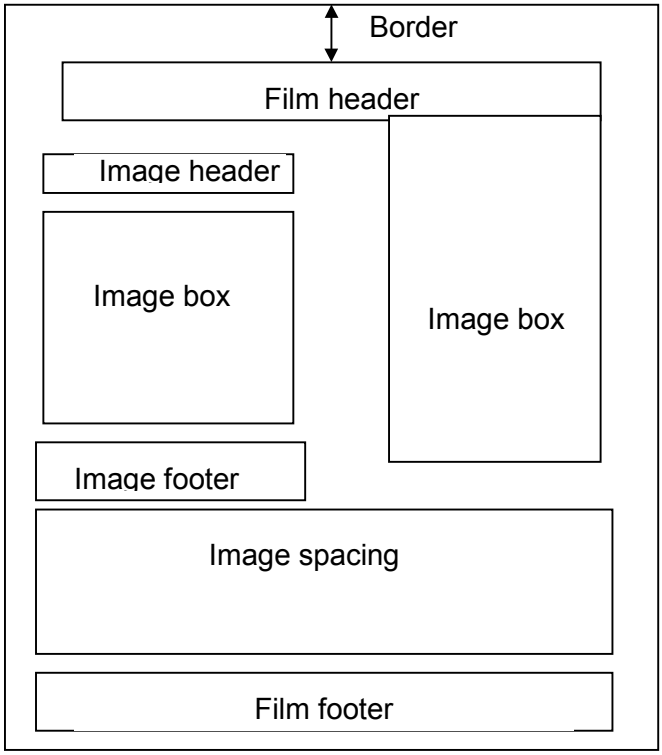
The following are the default layouts available to the user when the software is freshly installed:





Editing layouts
The default layouts provided in the user interface can be modified or extended with a tool accessible to all via the system module (layout editor → see user manual for more information). This data is kept in the following file:
`/home/mimosa/irc/local/Hardcopy/layout_files/layout.txt`

Configurable film layout fields:



Upgrading
All the data files for the smart print are located in the '`/home/mimosa/irc/local/`' directory. This means that they are kept over an upgrade. If for some reason you require the data as supplied with the software, they are available in the directory '`/home/mimosa/irc/data/hardcopy/`'. The software does however not use the data from this directory. It has to be in '`/home/mimosa/irc/local/`'.

Half resolution printing
A possibility to improve the performance and system load of printing is by sending the image on half the resolution and having it interpolated by the printer.
The advantage is clear: lower resource usage on workstation and network
The disadvantages are:
· Possible quality loss.
· Reduction of the image in the workstation to fit the specified layout,
followed by interpolation of image to use full resolution in the printer
· The fonts get interpolated as well, resulting in not so nice looking characters.
For specifying this way of working adapt the printer specification file, so that all image dimensions are exactly half their actual value. Remember to specify in the printer specification file the desired interpolation as well.

Having more than one description for the same printer
It is perfectly possible to have more then one description for the same printer. It is even possible to use them together by specifying two different printers with all the same parameters except for the printer model. A good example of this is the LR5200. You can see that in the provided list of printers the LR5200 is available as well as the LR5200HR. This last file contains the specification for the LR5200 but in High Resolution mode. By making these two descriptions available the user can interactively decide which printing resolution he want's to use. For the printing of slides, for example, it is better to use high-resolution printing to obtain the best possible result.
Creative use of multiple specification files can lead to an increase in the interactive options available to the user.

Appendix C: ADB tool

ADB (Agfa Dicom Bridge) in VIPS/DIPS from version 1.1.05

VIPS/DIPS software contains ADB version 1.6.
This has been successfully tested for some basic functions of ADB with all supported transfer syntaxes. Due to the complex functionality of ADB a complete test is almost impossible.

The purpose of ADB is to modify outgoing DICOM streams to deal with shortcomings or interoperability problems while interfacing the ADC workstation to PACS or other (non Agfa) workstations.

ADB Version 1.6 is capable to modify the DICOM message according configuration made in the so called DATABASE.TXT file.

The program is located in the /home/mimosa/irc/adb directory.

It consists of five (5) components:

adb	(the program)
DATABASE.TXT	(the configuration file/database)
CR-IMG.DEF	(the DICOM definition for CR storage)
autoadb	(start up file for adb)
Adb_man16.doc	(Word document with User Guide)

Quick reference to use DICOM Bridge from VIPS 1.1.05.

a) Create a database.txt file with the PC configuration tool as described in the documentation of ADB. Do not enable logging when the ADB usage is permanent. It will create large log files, filling up the file system.

b) Add manually the complete path for the definition file in the database.txt (e.g.: ***/home/mimosa/irc/adb/cr-img.def)***
Copy this file into the /home/mimosa/irc/local directory.

c) Change the permissions to the file:

chmod 777 database.txt

d) Copy this file into the home/mimosa/irc/adb directory. Change the name from lower case to upper case.

cp /home/mimosa/irc/local/database.txt /home/mimosa/irc/adb/DATABASE.TXT

e) Edit the desktop profile to start ADB on mimosa login (vi .dtprofile) you have to be superuser (su -> password = adcroot).

f) Add the following line to the end of .dtprofile:

/home/mimosa/irc/local/autoadb &

g) Give the correct permissions to:
chmod 777 /home/mimosa/irc/local/autoadb
and to
chmod 777 /home/mimosa/irc/adb/cr-img.def

h) Modify the Archive destination(s) (in the cpf file) to connect to the ***localhost*** (: i.e. delete all AS from the network table, they only have to be configured in the application table with the IP address of the VIPS and to be mentioned in the devices table; give them the port, used for comunication between VIPS and ADB = higher than 5000 - VIPS itself stays configured on port 104; the port for the AS = listening port of AS, is defined in the database.txt via windows configurator tool)

i) Reboot workstation

j) Check that ADB is running with ***ps –A*** or ***ps –A | grep adb***
- look for *adb* in list of running processes

k) Check that the transmission is behaving as planned!

After upgrade or installation of back up, repeat steps d) till k)